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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,151

10/31/2003

John D. Hottovy

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(CPCM:0020/FLE)

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12/14/2006

EXAMINER

Michael G. Fletcher

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CHEUNG, WILLIAM K

ART UNIT

PAPER NUMBER

1713

DATE MAILED: 12/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/699,151

Applicant(s)

HOTTOVY, JOHN D.

Examiner

William K. Cheung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. The examiner acknowledges the receipt of the amendment filed October 16, 2006. Claims 1-11, 17-22 are pending.
2. In view of the amendment filed October 16, the rejection of Claims 7-11 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, is withdrawn. Particularly regarding claim 7, in view of applicants' argument, applicants' specification (page 5, 0021) does provide transition methods for transitioning the first polymerization of step of claim 1 to the second polymerization step of 1.
3. In view of the withdrawal of the 112 rejection of claim 7-11, the rejection of claims 7-11, 17-22 under 35 U.S.C. 103(a) as obvious over Stanley et al. (US 3,244,681), is withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 1-6 are rejected under 35 U.S.C. 103(a) as obvious over Stanley et al. (US 3,244,681) for the reason adequately set forth from paragraph 9 of the office action of July 10, 2006.

Applicant's arguments filed October 16, 2006 have been fully considered but they are not persuasive. Because applicants choose not to address the substance of the rejection at the present time, and will address the substance of the rejection in the upcoming Appeal Brief, the rejection of claims 1-6 is maintained.

Applicants must recognize that Stanley et al. in its entirety, particularly (Figure; col. 1, line 49 to col. 3, line 16; col. 5-6, claims 1-2) describe a polymerization process comprising a loop reactor, olefin monomers in a liquid medium to produce a fluid slurry.

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The difference between the invention of claims 1-6 and Stanley et al. is that Stanley et al. are silent on a loop reactor has a root mean square surface roughness less than about 120 micro inches.

However, because Stanley et al. (col. 1, line 61-64; col. 6, claim 3) clearly suggest one of ordinary skill to employ a loop reactor having a reactor zone (inner surfaces) with smooth surface, or as smooth as possible to reduce fouling, it would have been obvious to one of ordinary skill in art to polish all the inner surface area of loop reactor of Stanley et al. to obtain a loop reactor has a root mean square surface roughness less than about 120 micro inches. Although Stanley et al. may not use the same units for measuring smoothness or roughness, applicants must recognize that the recited "root mean square surface roughness" is merely a functional language for gauging roughness or smoothness that does not lend itself to patentability.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

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only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

7. Claims 7-8, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Bodart et al. (US 2004/0029727 A1).

Bodart et al. (page 3, 0044) disclose an olefin polymerization process using chromium based catalyst in a loop reactor, a process that is very similar to the process disclosed in applicants' specification. Further, Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) disclose polymerization process involving the changing the polymerization condition to transition from a melt index of less than 0.3 gm/10 min to a melt index of greater than 0.4 gm/10 min to achieve polymer product with broader molecular weight distribution (page 1, 0001). Because the process teachings in Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) clearly teach the transitioning of resins produced by a process from a low melt index to

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a higher index by increasing the polymerization temperature, the examiner has a reasonable basis that the changing of the polymerization conditions would meet the claimed "first polymerization step" and "second polymerization step" feature of claim 7, because Bodart et al. clearly teach a polymerization process involving different polymerization steps running under different polymerization conditions. Therefore, claims 7-8, 10 are anticipated.

8. Claims 9, 11 are rejected under 35 U.S.C. 103(a) as obvious over Bodart et al. (US 2004/0029727 A1).

Bodart et al. (page 3, 0044) disclose an olefin polymerization process using chromium based catalyst in a loop reactor, a process that is very similar to the process disclosed in applicants' specification. Further, Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) disclose polymerization process involving the changing the polymerization condition to transition from a melt index of less than 0.3 gm/10 min to a melt index of greater than 0.4 gm/10 min to achieve polymer product with broader molecular weight distribution (page 1, 0001). Because the process teachings in Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) clearly teach the transitioning of resins produced by a process from a low melt index to a higher index by increasing the polymerization temperature, the examiner has a reasonable basis that the changing of the polymerization conditions would meet the claimed "first polymerization step" and "second polymerization step" feature of claim 7,

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because Bodart et al. clearly teach a polymerization process involving different polymerization steps running under different polymerization conditions.

The difference between the invention of Bodart et al. and claims 9, 11 is that Bodart et al. do not explicitly indicate that melt index of the first polymerization step producing a polymer product having a melt index of less than 0.2 gm/10 min or 0.1 gm/10 min.

However, because Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) clearly teach the transitioning of resins produced by a process from a low melt index to a higher index by increasing the polymerization temperature, motivated by the expectation of success of developing a process for producing polyethylene with very broad molecular weight distribution (page 1, 0001), it would be apparent to one of ordinary skill in art to recognize that the plots as described in Figures 3-6 can be extrapolated to a lower polymerization temperature as the first polymerization temperature. Therefore, motivated by the expectation of success of developing a process for producing polyethylene with very broad molecular weight distribution (page 1, 0001), it would have been obvious to one of ordinary skill in art to use a polymerization temperature that is lower than 94 °C for example 2 and lower than 98 °C for example 3 to obtain the invention of claims 9, 11.

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9. Claims 17-22 are rejected under 35 U.S.C. 103(a) as obvious over Bodart et al. (US 2004/0029727 A1) in view of Stanley et al. (US 3,244,681):

Bodart et al. (page 3, 0044) disclose an olefin polymerization process using chromium based catalyst in a loop reactor, a process that is very similar to the process disclosed in applicants' specification. Further, Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) disclose polymerization process involving the changing the polymerization condition to transition from a melt index of less than 0.3 gm/10 min to a melt index of greater than 0.4 gm/10 min to achieve polymer product with broader molecular weight distribution (page 1, 0001). Because the process teachings in Bodart et al. (page 4, examples 1-3, paragraphs 0062- 0065; Figures 3-6) clearly teach the transitioning of resins produced by a process from a low melt index to a higher index by increasing the polymerization temperature, the examiner has a reasonable basis that the changing of the polymerization conditions would meet the claimed "first polymerization step" and "second polymerization step" feature of claim 7, because Bodart et al. clearly teach a polymerization process involving different polymerization steps running under different polymerization conditions.

The difference between the invention of claims 17-22 and Bodart et al. is that Bodart et al. do not suggest that loop reactor employed should have a roughness of less than about 120 micro inches.

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However, because Stanley et al. (col. 1, line 61-64; col. 6, claim 3) clearly suggest one of ordinary skill to employ a loop reactor having a reactor zone (inner surfaces) with smooth surface, or as smooth as possible to reduce fouling, it would have been obvious to one of ordinary skill in art to polish all the inner surface area of loop reactor of Stanley et al. to obtain a loop reactor has a root mean square surface roughness less than about 120 micro inches. Although Stanley et al. may not use the same units for measuring smoothness or roughness, applicants must recognize that the recited "root mean square surface roughness" is merely a functional language for gauging roughness or smoothness that does not lend itself to patentability.

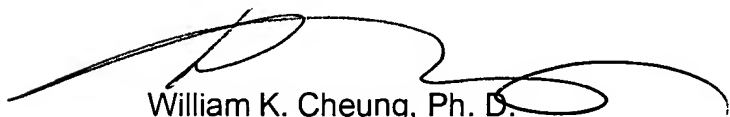
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William K. Cheung, Ph. D.

Primary Examiner

December 7, 2006

**WILLIAM K. CHEUNG
PRIMARY EXAMINER**